



VTune™ Enterprise Analyzer for Web Applications Java* Edition

Featuring Technology from Precise
Installation Guide*

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Issued in U.S.A.
Order Number: 251511-001

World Wide Web: <http://developer.intel.com>

Version	Version History	Date
-001	Initial version	July 2002

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Introduction

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This document provides detailed instructions on installing, configuring and managing VTune™ Enterprise Analyzer for Web Applications, Java* edition, featuring technology from Precise*.

Refer to the VTune Enterprise Analyzer Online help for detailed information on using VTune Enterprise Analyzer.

About This Manual

Because the installation process is different for different application servers, the installation process and corresponding uninstall for each platform are documented separately in different chapters.

The document contains the following chapters:

- [Chapter 1, “Introduction”](#) is this chapter.
- [Chapter 2, “Installing the Components”](#) explains the different VTune Enterprise Analyzer components and how to install them
- [Chapter 3, “Installing on a WebLogic* Server”](#) explains how to install the VTune Enterprise Analyzer Local J2EE Collection Agent on a machine with a WebLogic application server.
- [Chapter 4, “Installing on a WebSphere* 4.x Server”](#) explains how to install the VTune Enterprise Analyzer Local J2EE Collection Agent on a machine with a WebSphere 4.x application server.
- [Chapter 5, “Working with the VTune™ Enterprise Analyzer”](#) explains how to start and stop Java* data collection.

This user's guide also includes an index.

Checking System Requirements

Before installing, make sure your system satisfies the following requirements.

VTune Enterprise Analyzer Collection Server

Minimum Hardware Requirements

- An Intel® Celeron®, Pentium® II, Pentium II Xeon™, Pentium III, Mobile Intel® Pentium® III Processor-M, Pentium III Xeon, Pentium 4, or Intel Xeon™ processor-based system.
- Use the Windows* recommended virtual memory paging file size to prevent unexpected failures of the Intel® VTune™ Enterprise Analyzer for Web Applications.
- At least 500 megabytes of available space on a local drive.
- Additionally, 20 megabytes of disk space is required for system files on the drive containing the system directory (for example C:). This additional hard disk space is needed for updating and installing the DLLs and OCXs that the Intel® VTune™ Enterprise Analyzer for Web Applications requires to be in the system directory. Even if you install the Intel® VTune™ Enterprise Analyzer for Web Applications on a hard disk other than the drive containing the system directory, make sure that you have at least 20 megabytes on the drive containing the system directory.

Minimum Software Requirements

Microsoft Windows* 2000 Professional, or Windows 2000 Server, or Windows 2000 Advanced server with SP 2, English edition

Monitored Environment

The monitored machines should have a Microsoft Windows 2000 Service Pack 2+ operating system, and one of the following application servers:

WebLogic Application Server

5.1, SP6+

6.0 any service pack

6.1 any service pack

WebSphere Application Server

3.5 Fix Pack 2+

4.0 Fix Pack 2+

Requirements for the Monitored JVMs

These are the JVMs that can be monitored:

- Sun* JDK 1.2.2, 1.3.0, 1.3.1
- IBM* JDK 1.2, 1.3
- BEA* JRockit*

Requirements for the JDBC* Drivers

These are the JDBC* drivers that are supported:

- Oracle JDBC Type 2, Type 4
- WebLogic Jdriver Oracle JDBC Type 2
- Sybase* JConnect JDBC Type 2, Type 4
- DB2* JDBC Type 2, Type 4

Requirements for Using an Oracle* Data Storage

To install the VTune Enterprise Analyzer components using Oracle* as a data repository, the following requirements must be met:

- The machine where the installation is being performed must have the Oracle Client installed along with the local net service name setup (via tnsnames.ora file), to provide local access to the intended database.

- At least 250 MB disk space on the intended Oracle* instance.

Notational Conventions

This manual uses the following conventions:

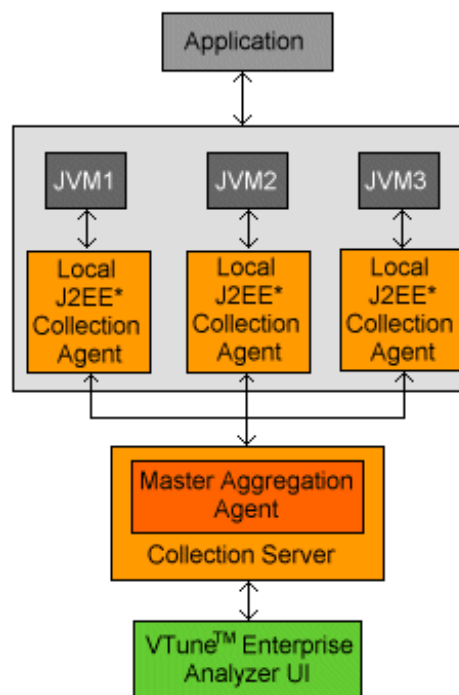
<code>this type style</code>	Indicates all or part of a command-line. The text appears in lower case.
<i>this type style</i>	Indicates a place-holder for an identifier, an expression, a string, a symbol, or a value. Substitute one of these items for the place-holder.
[items]	Indicates that the items enclosed in brackets are optional.
this shading	In table cells indicates that this item is not supported in this release of the VTune Enterprise Analyzer.

Installing the Components

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The VTune™ Enterprise Analyzer for Web Applications, Java® edition, featuring technology from Precise®, enables you to collect and display information about the performance of a multi-tier web application. The VTune Enterprise Analyzer includes several components.

Figure 2-1 VTune™ Enterprise Analyzer Components



- The Local J2EE* Collection Agent resides on the monitored machines and performs the data collection and analysis.
- The Collection Server resides on the same machine as the Master Aggregation Agent and relays the information to machine with the user interface.
- The user interface controls the collection server and enables viewing the collected data. The user interface can reside on any machine.

Installing the VTune™ Enterprise Analyzer for Web Applications

When installing the VTune Enterprise Analyzer for web application you need to install several different components:

- The user interface. This can be installed on any machine on the network.
- The local J2EE collection agent. This should be installed on all the machines with monitored application servers. This installation also creates an account that enables the VTune Enterprise Analyzer to collect performance counter information.

Installing the User Interface

To install the user interface, in your selected machine, insert the CD-ROM and select the **Install Now...** button next to **Intel(R) VTune(TM) Enterprise Analyzer for Web Applications, Java edition**.

This installation includes several additional components: the server manager, the Collection Server and the Master Aggregation Agent.. Use the server manager to start and stop the Collection Server.

How the Data is Collected

The Collection Server gets data from the Master Aggregation Agent. The Master Aggregation Agent collects the data from the Local J2EE Collection Agents. The Local J2EE Collection Agents collect the data from the monitored JVMs using an account that is created as part of the Local J2EE Collection Agent installation.

Configuring the Master Aggregation Agent

The Master Aggregation Agent maintains a list of the installed local J2EE agents. This list is an XML file, `ArchiveAgent.xml`. You need to update the list upon every change in the set of installed Local J2EE Collection Agents. To add or remove agents from the file, you can edit the file or use the Collection Agents Locator.exe utility.

Installing the Local J2EE* Collection Agent

To install the local J2EE collection agent on a machine, insert the CD-ROM and select the **Install Now...** button next to **Local J2EE Collection Agent**. Install the local J2EE collection agent on every machine that runs a JVM to be monitored.

When monitoring more than one JVM on a machine with a Local J2EE Collection Agent, you need to run `adminIndepthJ2EE.exe` to notify the Local J2EE Collection Agent of the additional JVM.

How the Local J2EE Collection Agents Work

The Local J2EE* Collection Agent is installed on the machines with monitored application servers and enables you to monitor one or more application server JVMs. The local J2EE collection agent collects instrumentation data on server-side Java entities.

The local J2EE collection agent then summarizes the correlated data in real-time and, at the expiration of the predefined aggregation interval, forwards the summarized data to the Master Aggregation Agent.

Application Instrumentation

Application instrumentation inserts special recording hooks at critical points in the mid-tier application. During application execution, these hooks record events and time tags that are analyzed to provide an accurate and detailed history of performance. With its close ties to the application, instrumentation provides an application-centric view of performance correlated with both user page requests and back end relational database requests.

VTune Enterprise Analyzer instrumentation is automatically generated. A byte code instrumenter provides application specific events during application execution.

VTune Enterprise Analyzer fault tolerant instrumentation provides the most accurate and detailed measurements for monitoring and analyzing application performance. The VTune Enterprise Analyzer approach provides the advantages of custom instrumentation without its time consuming effort because application location and structure are automatically discovered. Thus, the local J2EE collection agents can rapidly respond to the changing application demands of the server-side Java environment.

Modifying the Application Server(s)

For each application server that runs one or more JVM(s) you need to modify the application server's start up script and restart it. For more information on how to modify a WebLogic* application server, see [“Defining a Connection” in Chapter 3](#). For more information on how to modify a WebSphere* application server, see [“Defining a Connection” in Chapter 4](#).

Database Information

All tasks related to the database tier are reported to a machine called Database. During Activity configuration you can define a single database machine. In this case the database tasks are reported on this machine.

*Installing on a WebLogic** *Server*

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Installing and configuring the Local J2EE* Collection Agent of the The VTune™ Enterprise Analyzer for Web Applications, Java* edition, featuring technology from Precise* on a machine with a WebLogic* application server, includes these steps:

- Verifying application server requirements
- Performing pre-installation tasks
- Installing on the application server machine
- Adding additional monitored application server instances

Requirements for the WebLogic Application Server

The WebLogic application server must meet the following requirements

- Runs on Microsoft* Windows* operating system
 - Version 5.1, SP6+
 - Version 6.0 any service pack
 - Version 6.1 any service pack

Pre-Installation Tasks

Before you can install VTune Enterprise Analyzer, you must know the location of the start script for your WebLogic server instance.

Installing on the Application Server Machine

When installing the Local J2EE Collection Agent on an application server machine, you must run the VTune Enterprise Analyzer Installer. The VTune Enterprise Analyzer Installer is a wizard that guides you through the installation process. The Installer performs all necessary steps to configure your software to monitor a single application server instance running on the same machine. See [“Adding Additional Monitored Application Server Instances”](#) for information on adding additional application server instances to your configuration.

To install on a application server machine:

1. Log on as a user with permission to install applications.
2. Insert the CD-ROM and select the **Install Now...** button next to **Local J2EE* Collection Agent**.
3. Follow the onscreen instructions.



NOTE. *VTune Enterprise Analyzer uses components that must be installed in folders which do not contain empty spaces in their names. Therefore, make sure you install the Local J2EE Collection Agent in a folder that does not include empty spaces in its name, such as C:\Local_J2EE_Collection_Agent.*

Adding Additional Monitored Application Server Instances

VTune Enterprise Analyzer can monitor one or more application server instances on the application server machine. The first monitored application server instance is setup automatically during the installation of VTune Enterprise Analyzer. The following procedure explains how to add additional monitored application server instances.



NOTE. *VTune Enterprise Analyzer lets you define an identifier (referred to as <id> throughout this installation guide) that uniquely identifies an application server instance. Typically, the TCP port number that the application server instance is listening to is used for this identifier. You can use any alphanumeric string that uniquely identifies each instance.*

To add application server instances:

Run the following command:

```
<Local_J2EE_Collection_Agent>\bin\adminIndepthJ2EE.bat <id>  
addServer
```

where <id> is an identifier used to uniquely identify the application server instance (listen port). For example, to add a WebLogic server instance listening on port 7002, run the following command:

```
<Local_J2EE_Collection_Agent>\bin\adminIndepthJ2EE.bat 7002  
addServer
```

The addServer command output reports that directory

```
<Local_J2EE_Collection_Agent>\config\<id> is created and information on  
the application server is added to file  
<Local_J2EE_Collection_Agent>\config\servers.xml.
```

Defining a Connection

To enable the Local J2EE Collection Agent to work with the WebLogic application server, you must define a connection between the Local J2EE Collection Agent and the application server software.

To define a connection, you must make modifications to the script that starts your application server. These modifications include adding definitions for two environment variables, and adding some text to the beginning of the Java command line used to start the application server.

Use the Configuration Wizard in the installer to view the instructions in the onscreen instruction



NOTE. *The following procedure assumes a typical WebLogic installation. If you have customized your startup process, you may have to modify these steps to suit the requirements of your environment.*

To define a connection:

1. Edit the file `startWebLogic.cmd` of the application server machine. Add the following before the Java command line that starts your application server instance on a application server machine:

```
set INDEPTH_J2EE_HOME=<Local_J2EE_Collection_Agent>
set INDEPTH_JVMID=<id>
```



NOTE. *The WebLogic start script may contain 'if-then' logic to handle certain conditions. As a result there may be multiple places where Java is executed. Ensure to modify in accordance with the Java command line that starts your application server instance, or modify all Java command lines to be safe.*

2. Edit the same startWebLogic file as in step 1, and insert the following text at the beginning of the Java command line that starts your application server instance on the application server machine:

```
%INDEPTH_J2EE_HOME%\bin\aplwls<version>
```

where <version> is either '51' or '6' (without the quote marks)

For example, if you were running with WebLogic v5.1, you would add the text

```
%INDEPTH_J2EE_HOME%\bin\aplwls51
```

at the beginning of the Java command line that looks like

```
%JDK_HOME%\bin\java -ms64m -mx64m ...
```

The resulting line would look like:

```
%INDEPTH_J2EE_HOME%\bin\aplwls51 %JDK_HOME%\bin\java -ms64m -mx64m  
...
```



NOTE. If your WebLogic JRE is v1.2.1, you must unjar the *indepthj2eeboot.jar* file into a temporary directory and add this temporary directory to your classpath.

If you use the WebLogic Node Manager Utility to start your WebLogic instance, the WebLogic configuration procedure described in this document (and in the Installation Wizard) will not work.

To configure a WebLogic instance for VTune Enterprise Analyzer when utilizing the WebLogic Node Manager Utility for Server startup/shutdown, open the WebLogic Console Utility and add the following to the END of the Java command line arguments field for the WebLogic instance to be monitored on the application server machine:

```
-Dindepth.j2ee.server=<Local_J2EE_Collection_Agent>\config\<id>  
-Dindepth.j2ee.verbose=true (optional)  
com.precise.javaperf.launcher.AppLauncher
```

Instrumenting a Monitored Application Server Instance

VTune Enterprise Analyzer can use both dynamic instrumentation (in memory) and file-based instrumentation (manual). Dynamic instrumentation is configured by default.

For file-based instrumentation, you must specify the directories and files that contain the Java classes to be instrumented. These classes may be a combination of directories containing class files, jar files or zip files.

To instrument application server components:

1. Make sure that the application server has been added to the set of application servers monitored by VTune Enterprise Analyzer (see [“Adding Additional Monitored Application Server Instances”](#) for more information).
2. Copy sample file
`<Local_J2EE_Collection_Agent>/samples/application.xml.wl<version>`
to the configuration directory of the monitored application server.
3. Change the name of the sample application file to `application.xml`.
4. Edit file `application.xml`, specifying the target class directories, zip files and jar files you want to instrument. Modify the provided examples and, if necessary, add to them.



NOTE. Make sure that paths specified by you in file `application.xml` conform to the standards of your operating system. For example, `C:\<directory name>\<subdirectory name>` in a Windows operating system.

5. If the classes to be instrumented have dependencies outside of their respective directories, add the directories, jar files and/or zip files of the dependencies to the classpath in file `application.xml`.
For example, if class `com.acme.sample` extends or implements

`somesuper.class` in directory `genclasses`, the classpath in file `application.xml` must include a reference to `somesuper.class`. Define the classpath as follows:

```
<classpath>C:\<directory_name>\genclasses<\classpath>
```

6. Run the following command on the application server machine

```
<Local_J2EE_Collection_Agent>\bin\adminInDepthJ2EE.bat <id>  
instrument
```

where `<id>` is an identifier used to uniquely identify the application server instance (listen port).

For example, to instrument the WebLogic server instance listening on port 7001, run the following command on the application server machine:

```
<Local_J2EE_Collection_Agent>\bin\adminInDepthJ2EE.bat 7001  
instrument
```

File `<Local_J2EE_Collection_Agent>\config\<id>\instrumenter.log` is created. The newly created log file lists all files changed by the instrumentation process.



CAUTION. *Do not interrupt the instrumentation process. Doing so could leave your class files in an inconsistent state.*

7. Restart the application server to reload the instrumented class files.
8. Instrumented files can be restored to their original version in a process referred to as de-instrumentation by running the following command on the application server machine:

```
<Local_J2EE_Collection_Agent>\bin\adminInDepthJ2EE.bat <id>  
deinstrument
```

where `<id>` is an identifier used to uniquely identify the application server instance (listen port).

De-instrumentation restores each instrumented file listed in file `<Local_J2EE_Collection_Agent>\config\<id>\deinstrumenter.log` on the application server machine to its original version.

Uninstalling

To uninstall the Local J2EE Collection Agent:

1. Make sure that you have stopped all VTune Enterprise Analyzer components. See [“To Stop the Components” in Chapter 5](#)
2. Remove the defined environment variables that were added to the WebLogic startup script during the installation process on your application server machine:

Remove the following from the `startWebLogic.cmd` file

```
set INDEPTH_J2EE_HOME=<Local_J2EE_Collection_Agent>
set INDEPTH_JVMID=<id>
```

3. Remove the text at the beginning of the Java command line that was added to the WebLogic startup script during the installation process on your application server machine:

Remove the following from the start up line of the `startWebLogic.cmd` file

```
<Local_J2EE_Collection_Agent>\bin\aplwls<version>
```

where `<version>` is either '51' or '6' (without the quote marks)



NOTE. *You will have to manually delete the directory `<Local_J2EE_Collection_Agent>` due to modifications and creation of files during the operation of VTune Enterprise Analyzer.*

Installing on a WebSphere* 4.x Server

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Installation Overview

Installing and configuring the Local J2EE* Collection Agent of the The VTune™ Enterprise Analyzer for Web Applications, Java* edition, featuring technology from Precise* on a machine with a WebSphere*, version 4.x, application server, includes these steps:

- Checking application server requirements
- Performing pre-installation tasks
- Installing on the application server machine
- Adding and configuring additional monitored application server instances
- Instrumenting a monitored application server instance

Requirements for the Application Server

The WebSphere application server must meet the following requirements

- Runs on Window* operating system
- Version 3.5 Fix Pack 2+
- Version 4.0 Fix Pack 2+

Pre-Installation Tasks

Before you can install VTune Enterprise Analyzer, you have to perform the mandatory pre-installation steps described below.

Task 1 Backup the configuration files of the application server to be monitored.

Depending on your application server's configuration, VTune Enterprise Analyzer may modify your configuration files. It is, therefore, recommended that you backup these files as a precaution.

Task 2 Backup the Java* class files of the application to be monitored.

To safeguard your application, it is recommended that you save a copy of the Java class files to a different location.

Task 3 Verify that the JavaServer Pages* (JSPs) in the applications to be monitored have been compiled.

Installing on the Application Server Machine

When installing the Local J2EE Collection Agent on an application server machine, you must run the VTune Enterprise Analyzer Installer. The VTune Enterprise Analyzer Installer is a wizard that guides you through the installation process. The Installer performs all necessary steps to configure your software to monitor a single application server instance running on the same machine. See [“Adding and Configuring Additional Monitored Application Server Instances”](#) for information on adding additional application server instances to your configuration.

To install on the Application Server Machine

1. Log on as a user with permission to install applications.
2. Locate and double-click file `j2csetup.exe` in the CD-ROM.
The VTune Enterprise Analyzer Installer opens.
3. Follow the onscreen instructions.



NOTE. *VTune Enterprise Analyzer uses components that must be installed in folders which do not contain empty spaces in their names. Therefore, make sure you install VTune Enterprise Analyzer edition in a folder that does not include empty spaces in its name, such as C:\Local_J2EE_Collection_Agent.*

Adding and Configuring Additional Monitored Application Server Instances

VTune Enterprise Analyzer can monitor one or more application server instances on the application server machine. The first monitored application server instance is setup automatically during the installation of VTune Enterprise Analyzer. The following procedure explains how to add additional monitored application server instances.

To add application server instances:

- Run the following command:

```
<Local_J2EE_Collection_Agent>\bin\adminInDepthJ2EE.bat <id> addServer
```

where <id> is an identifier used to uniquely identify the application server instance. You can use any alphanumeric string that is unique enough to differentiate between application server instances. It is recommended to use the same value as that in the Application Server Name field in the WebSphere console. The <id> must not contain any blanks.

For example, to add a WebSphere server instance for the default application server, run the following command:

```
<Local_J2EE_Collection_Agent>\bin\adminInDepthJ2EE.bat default_server  
addServer
```

The addServer command output reports that directory

```
<Local_J2EE_Collection_Agent>\config\<id> has been created and  
information on the application server has been added to file
```

```
<Local_J2EE_Collection_Agent>\config\servers.xml.
```

Defining a Connection

To enable the Local J2EE Collection Agent to work with the application server, you must define a connection between the Local J2EE Collection Agent and the application server software.

To define a connection, you must make modifications to the process that starts your application server. These modifications include appending information to the classpath, passing arguments to JVM invoked by WebSphere and providing path information for the VTune Enterprise Analyzer libraries.

The <fix pack version> refers to the WebSphere fix pack version currently installed with WebSphere.



NOTE. *The following procedure assumes a typical WebSphere installation. If you have customized your startup process, you may have to modify these steps to suit the requirements of your environment.*

To define a connection:

1. Select the application server to be monitored. Select JVM Settings and add the following to the Classpaths property:

```
<Local_J2EE_Collection_Agent>\lib\indepthj2eeboot.jar
```
2. Open the WebSphere Administrative Console and select the server to be monitored. Select **JVM Settings**, and add the following System Properties:

Name: indepth.j2ee.server

Value: <Local_J2EE_Collection_Agent>\config\<id>

Name: com.ibm.websphere.classloader.plugin

Value:

com.precise.javaperf.extensions.websphere.ClassPreLoader40
(optional argument)

Name: indepth.j2ee.verbose

Value: true

Name: ws.ext.dirs

Value: <Local_J2EE_Collection_Agent>/lib/indepthj2ee.jar

Save your settings.

3. Add the following environment variable by pressing the Environment button (within the General tab) to open the Property Editor Environment Editor dialog.

PATH=%PATH%;<Local_J2EE_Collection_Agent>\lib



NOTE. *These directions are for WebSphere Enterprise Edition. If you are running Single Server edition, the System Properties panel may be accessed by navigating to Process Definition > JVM Settings > System Properties.*

NOTE. *If you are running WebSphere Single Server edition, the System Properties panel is located at: Process Definition > JVM Settings > System Properties.*

Instrumenting a Monitored Application Server Instance

VTune Enterprise Analyzer can use both dynamic instrumentation (in memory) and file-based instrumentation (manual). Dynamic instrumentation is configured by default. For file-based instrumentation,

you must specify the directories and files that contain the Java classes to be instrumented. These classes may be a combination of directories containing class files, jar files or zip files.



NOTE. *VTune Enterprise Analyzer for WebSphere requires file-based instrumentation for JDBC* drivers, even when dynamic instrumentation is enabled. If you do not instrument the JDBC drivers, VTune Enterprise Analyzer will not report JDBC contributors.*

To enable file-based instrumentation:



NOTE. *File-based instrumentation assumes general knowledge on how your application is deployed in the application server. If necessary, consult the application developer(s) or architect to determine where application components are located on the file system.*

1. Make sure that the application server has been added to the set of application servers monitored by VTune Enterprise Analyzer. For information, see [“Adding and Configuring Additional Monitored Application Server Instances”](#). This may have already been performed during installation of VTune Enterprise Analyzer.
2. Copy sample file
<Local_J2EE_Collection_Agent>/samples/application.xml.was
40 to the configuration directory of the monitored application instance.

3. Change the name of the sample application file to `application.xml`.
For example, rename the sample file as follows:
Copy file
`<Local_J2EE_Collection_Agent>\samples\application.xml` was
40 to
`<Local_J2EE_Collection_Agent>\config\<id>\application.xml`
.
4. Edit file `application.xml` by specifying the target class directories, zip files and jar files you want to instrument, modifying the examples provided and, if necessary, adding to them.



NOTE. *To specify classes in a Java package, you only have to specify the top level directory or resource file (jar or zip file) provided that the subdirectories match the package naming conventions.*

5. If the classes to be instrumented have dependencies outside of their respective directories, add the directories, jar files and/or zip filezip files of the dependencies to the classpath in file `application.xml`.
For example, if class `com.acme.sample` extends or implements `somesuper.class` in directory `genclasses`, the classpath in file `application.xml` must include a reference to `somesuper.class`.
6. Run the following command:
`<Local_J2EE_Collection_Agent>\bin\adminIndepthJ2EE.bat <id>`
instrument
where `<id>` is an identifier used to uniquely identify the application server instance (i.e., listen port).
File
`<Local_J2EE_Collection_Agent>\config\<id>\instrumenter.log`
is created. The newly created log file lists all files changed by the instrumentation process.



NOTE. *Do not interrupt the instrumentation process. Doing so could leave your class files in an inconsistent state.*

7. Restart the administrative server.

8. Restart the application server.

Instrumented files can be restored to their original version in a process referred to as de-instrumentation by running the following command:

```
<Local_J2EE_Collection_Agent>\bin\adminIndepthJ2EE.bat <id>  
deinstrument
```

where <id> is an identifier used to uniquely identify the application server instance (i.e., listen port).

De-instrumentation restores each instrumented file listed in file < <Local_J2EE_Collection_Agent>\config\<id>\deinstrumenter.log on the application server machine to its original version.

Uninstalling

To uninstall the Local J2EE Collection Agent:

1. Make sure that you have stopped all VTune Enterprise Analyzer components. For information on stopping these components, see [“To Stop the Components” in Chapter 2](#).

2. Only for file-based instrumentation

For each monitored application server instance, run the following command to deinstrument the applications running on the application server:

```
<Local_J2EE_Collection_Agent>\bin\adminIndepthJ2EE.bat <id>  
deinstrument
```

where <id> is an identifier that uniquely identifies the application server (i.e., listen port).



NOTE. *The Windows* operating system does not permit files in use to be modified. Therefore, it is recommended that you shut down the monitored application server instance before deinstrumenting the applications running on the application server and uninstalling VTune Enterprise Analyzer.*

Running this command restores each instrumented file listed in file `<Local_J2EE_Collection_Agent>/config/<id>/deinstrumenter.log` on the application server machine to its original version.

3. For each monitored application server instance, edit the environment settings as follows:
 - Remove the following from the `<WAS_HOME>/lib/ext` directory:


```
Indepthj2eeboot.jar
Indepthj2ee.jar
```
 - Open the WebSphere Administrative Console and select the server to be monitored. Select **JVM Settings**, and from **System Properties** remove the following:


```
PATH
indepth.j2ee.home
indepth.j2ee.verbose (may not have been added)
com.ibm.websphere.classloader.plugin.
```



NOTE. *You will have to manually delete directory `<Local_J2EE_Collection_Agent>` due to modifications and creation of files during the operation of VTune Enterprise Analyzer.*

Working with the VTune™ Enterprise Analyzer

5

The VTune Enterprise Analyzer Components

The VTune™ Enterprise Analyzer for Web Applications, Java* edition, featuring technology from Precise* includes several components which may, or may not reside on the same machine. Each component needs to be started separately before you can start collecting performance data. These are the VTune Enterprise Analyzer components:

- Collection Server. This component is activated by the server manager
- Master Aggregation Agent
- Local J2EE* Collection Agent
- VTune Enterprise Analyzer user interface

In addition, each monitored machine also has a special account installed to enable collecting the monitored data.

To Start the Components

To start the different components, follow these steps:

To start the Local J2EE Collection Agents:

On the machine(s) where the Local J2EE Collection Agent is installed, open the **Local J2EE Collection Agent** program group and click **Start Local J2EE Collection Agent**.



NOTE. *The application server JVM must be running before you start the Local J2EE Collection Agent*

To start the Master Aggregation Agent:

On the machine where the Master Aggregation Agent is installed, open the **Master Aggregation Agent** program group and click **Start Master Aggregation Agent**.

To Start the Collection Server:

On the machine where the VTune Enterprise Analyzer is installed, open the **VTune Enterprise Analyzer for Web Applications** program group and click **Server Manager**. The Server Manager opens. Click **Start** to activate the Collection Server.



NOTE. *If you are running VTune Enterprise Analyzer with an Oracle based storage system, this step is not necessary, however the Oracle database should be running before starting VTune Enterprise Analyzer.*

Before you create a data collection Activity using the VTune Enterprise Analyzer user interface, you need to start all the other components.

To Stop the Components

To start the different components, follow these steps:

To stop the Local J2EE Collection Agents:

On the machine(s) where the Local J2EE Collection Agent is installed, open the **Local J2EE Collection Agent** program group and click **Stop Local J2EE Collection Agent**.

To stop the Master Aggregation Agent:

On the machine where the Master Aggregation Agent is installed, open the **Master Aggregation Agent** program group and click **Stop Master Aggregation Agent**.

To Stop the Collection Server:

On the machine where the VTune Enterprise Analyzer is installed, maximize the server manager and click **Stop** to stop the Collection Server.

Getting Started Analyzing Your Web Application

After installing the VTune Enterprise Analyzer components and setting up the special accounts to enable the VTune Enterprise Analyzer access privileged resources, you can get started analyzing your web application. Use the VTune Enterprise Analyzer to collect information on your web site performance, before you deploy the site on the Web. The VTune Enterprise Analyzer is best used in conjunction with a stress tool to simulate the web actions of the users.

Before you analyze your web site performance, do the following:

1. Start all the different components
 - Local J2EE Collection Agent(s)
 - Server Manager. This component activates the Collection Server
 - Master Aggregation Agent
 - VTune Enterprise Analyzer user interface.
2. Create an Enterprise Web Activity. See the VTune Enterprise Analyzer online help for more information.
3. Start data collection. Make sure to collect data for at least 1 minute.
4. After completing sufficient collection of data, stop data collection.

After stopping data collection you can view all the different views in the VTune Enterprise Analyzer user interface.



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